first half had been given. By injecting half of the minimum effective dose of arsenoxide, and half of the minimum effective dose of antimonyllactate, neither half by itself sufficing to effect any change in the trypanosome count, the two together prove to be effective. From this we reason that arsenic and antimony are trypanocidally complementary, an assumption which does not agree with Ehrlich's theory of the "chemo-receptor specificity." The aspect of the entire problem, in fact, turns the attention from this conception, and points the way to a reaction between the ultimate active form arising from all arsenicals, the arsenoxide form, and the stability of the trypanosome molecular-aggregate—a reaction which, when ultimately explained, will probably prove extremely simple.

Summary.

1. A method for the rapid and accurate determination of the trypanocidal power of drugs (minimum effective dose) is recommended.

2. A sharply defined threshold (minimum effective dose) is observed, below which the drug has no appreciable effect upon the parasites. This threshold is in part due to the nature of the reaction between the drug and the parasites, and in part to absorption of the drug by the tissues of the host.

3. Differences in the toxicity and parasiticidal activity of various arsenic and antimony preparations have been explained on the hypothesis that they must be changed to one type, namely, the oxides

R. As:O or R. Sb:O

before exerting their principal toxic action. Arsphenamine and neoarsphenamine have to be oxidized in the body before they can act upon the parasites.

FURTHER NOTE ON OUTBREAK OF TYPHOID FEVER AT HOPEWELL, VA.[1]

By J. P. LEAKE, Passed Assistant Surgeon, United States Public Health Service, RICHARD MESSER, Sanitary Engineer, and AUBREY STRAUS, Bacteriologist, Virginia State Department of Health.

In the Public Health Reports of September 17 there was published a notice of an outbreak of typhoid fever among persons who participated in a dinner at Hopewell, Va. There have been no further fatalities and no new cases have developed except in two children who did not attend the banquet. An older sister of these two children did attend and had typhoid fever early in the outbreak, and her younger brother and sister took the disease about a month later, presumably from direct or indirect contact with their sister.

[1] See Public Health Reports, Sept. 17, 1920, pp. 2197-2199.

Further experiments with infected mayonnaise dressing have shown that under laboratory conditions typhoid bacilli will probably not proliferate but will gradually decrease in number at 31° C. In one experiment, judging by the number of colonies on Endo plates, the content of 1 cubic centimeter of the salad dressing immediately, 2, 4, and 24 hours after infection was 10,000,000, 5,000,000, 500,000, and 2,500 typhoid bacilli, respectively. There remain, therefore, three possibilities: that the mayonnaise dressing was so heavily infected that enough organisms remained a few hours after its preparation to cause the intense incidence of the disease; that the veal, chicken, and celery used in the salad were similarly infected in chopping and mixing just before the dinner; or that the infection took place in some other manner at the banquet.

The feature of chief importance in the outbreak was the great variability in symptoms exhibited, from those of the classical picture of the disease. This variability is a characteristic which typhoid fever shares with many infections; but the intensity of prevalence from a sharply limited infection is seldom such as to show this clearly.

YELLOW FEVER AT THE NEW ORLEANS QUARANTINE STATION.

In view of the rarity of the occurrence of yellow fever in the United States, the following account of a case detected on an incoming vessel at the New Orleans quarantine station is of interest.

The vessel, upon arrival at the quarantine station, was three days out from Vera Cruz, where yellow fever was known to be prevailing. At the time of inspection at quarantine, the patient's temperature was 40.3° C., pulse 80, respiration 30, eyes bright and suffused, the ocular conjunctivæ being distinctly congested and yellowish; the skin of the face and neck was hot, dry, and congested; the lips were somewhat puffy and congested; and the saliva appeared chocolate-colored. The lungs and heart were apparently normal, and the spleen and liver were not enlarged. Just prior to removal to the quarantine hospital the patient vomited a quantity of chocolate-colored fluid containing partially digested blood. A specimen of urine obtained by catheterization showed, when treated by appropriate reagents, a large precipitate of serum albumen. The patient became unconscious soon after removal to the hospital and, in the night, collapsed and died. This was on September 3.

The history of the case prior to arrival, as elicited from the master of the vessel, was to the effect that the patient complained of a headache on the evening of August 31, with some nausea and pain in the extremities. He had no chill and was constipated. At that time